

The great ocean conveyor belt (also called the thermohaline circulation)



The global conveyor belt or thermohaline circulation ensures the mixing of water masses from all the ocean basins. It is primarily driven by the formation of deep water in the Norwegian Sea ① due to differences in temperature and salinity of water masses. Surface water warmed at the equator, and then carried north by the Gulf Stream, moves to high latitudes where it releases heat to the atmosphere.

As a result, the water cools - becomes denser - and sinks down thousands of metres to form the North Atlantic Deep Water. This cold water current flows southward along the continental slope of North and South America towards Antarctica ②. It continues flowing eastward around the Antarctic continent (as the Antarctic Circumpolar Current) and then through the Indian ③ and Pacific Ocean ④.

The water masses gradually warm and mix with overlying waters as they flow northward. After rising to the surface in the Pacific they come back towards the North Atlantic ⑤ to complete the path ca. 1000 years later. This global ocean circulation acts as a climate regulator and also affects the amounts of CO₂ and other pollutant gases that get dissolved into the ocean and are thereby removed from our atmosphere.

LEGEND :

	In red:	warm surface ocean currents
	In blue:	cold deep water